

The University of Washington electronic medical record experience*

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The Health Sciences Library at the University of Washington initiated and continues to develop a role in the electronic medical record, starting with the development of the first integrated web-based interface, called MINDscape. An Integrated Academic Information Management System (IAIMS) grant in 1992 began the process, which also led to the development of a clinical medical librarian position. Over the years, the librarian's role in the clinical

environment became more established, and with the advent of clinical online resources, it offered further opportunities for librarians to provide the expertise needed to incorporate the appropriate resources. The collaborative journey continues as librarians, now able to directly access the EMRs, provide information about what resources to use and where best to place them and design how best to provide notes or feedback to clinicians.

FOUNDATION BUILDING

The University of Washington (UW) School of Medicine is the only medical school in a five-state region, Washington, Wyoming, Alaska, Montana, and Idaho (WWAMI). The WWAMI program's purpose is to provide access to publicly supported medical education across the five-state region. The UW School of Medicine maintains a dean's office in each of the five states to oversee education. This multistate program began in the 1970s, when then Senator Warren G. Magnuson negotiated "seed" money to start the program.

This collaborative and long-distance education environment encouraged the reliance on online resources. With the widespread introduction of end-user access to online databases starting in the early 1990s and ever-increasing reliance by clinicians and other health professionals on these resources, librarians recognized that there was a need to provide health care professionals with more immediate access to such resources at the point of care. The web is very young compared to other publications. It was only 1991 when the National Science Foundation opened the Internet to commercial use, and by 1993, Mosaic was introduced. In 1994, Netscape and Yahoo were created.

The foundation for the current extensive involvement of UW librarians in the electronic medical record (EMR) was the belief of Sherrilynne Fuller, FMLA, that librarians have an important role in information management and collaboration. Fuller, director of the UW Health Sciences Libraries UWHSL from 1988 to 2008, received her first Integrated Academic Information Management System (IAIMS) grant in 1992 from the National Library of Medicine. In describing this grant, she explained that:

Recognizing the importance of integrating and managing information, the University of Washington Health Sciences Center (UWHSC) has committed itself to the Integrated Academic Information Management System (IAIMS) concept to enhance its leadership in academic, research, and clinical missions... Our overall goal is to create a comprehensive and transparent information access and management network that will complement and, indeed, amplify the technological and organizational diversity of UWHSC and its affiliated institutions and programs. This means providing students, educators, clinicians, administrators, librarians, researchers, and staff with convenient and timely access to the information they need for optimal function, regardless of the physical location of the user, the resource or system involved, or the format of the information. [1]

Recognizing their collaborative skills, as well as their information management skills, the IAIMS grant gave librarians a vital role in the pursuit of this goal. In addition, it was decided that there was a need for a clinical medical librarian. That new position was created out of an existing reference librarian position at UWHSL. The new clinical librarian began attending resident report as often as four times a week and making rounds with clinicians. This role continues today in 2009 and presents the medical librarians as a positive and necessary resource in the medical environment.

The IAIMS grant led to the development of Medical Information Networked Databases (MINDscape), based on a number of programs already in use at the University of Washington Medical Center (UWMC):

MINDscape is an integrated Web interface to diverse sources of clinical information including patient-specific information (electronic medical record) as well as medical knowledge (the digital library) to provide "just in time" information at the point of care. [2]

MINDscape contains such information as: patient demographics, insurance coverage, clinician-selected problem lists entries, International Classification of Diseases (ICD-9) diagnoses, all transcriptions, selected pharmacy records, allergies, immunizations, automatically generated clinical alerts, stay/visit data,

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Current Procedural Terminology (CPT) procedure codes, laboratory data, and radiology reports. Initial use of MINDscape began around 1996 with a diverse group of users: physicians, nurses, residents, nurse practitioners, fellows, and attending physicians, including the WWAMI region of referring physicians.

PROVISION OF CLINICAL RESOURCES

Growth continued over the next ten years in both MINDscape and in the availability of online resources. Just prior to 2001, the libraries moved to a web proxy, which allowed easier access to online resources. The UW School of Medicine and Hospitals (UWMC and Harborview Medical Center) made heavy use of library resources with usage increasing further when the libraries moved to EZ-proxy in 2004. Ease of access was especially important to the physicians and students throughout the WWAMI region who were far from the UWHSL but still needed access to the resources.

Early in 2001, a commercial EMR was purchased by UWMC and customization began. Initial implementation occurred in 2003. Prior to 2008, no clinical resources were connected to the UW EMR, which is known as the online record of clinical activity (ORCA). Access to clinical resources grew out of discussions that occurred when Debra Ketchell, then deputy director of UWHSL, identified a new resource, UpToDate (UTD), that she felt was important for the UW to license, especially for clinicians. Given the distributed nature of UW physicians and students, she insisted that remote access be available for this resource. While UTD was the critical resource, it could have been any other resource that was heavily used and needed by clinicians that would provide an opportunity to integrate clinical resources into the EMR.

During 2007 and 2008, the UWHSL negotiated a new contract with UTD, which prompted discussions with various groups in the hospitals and medical school on how to share the growing cost of this resource. Presentations were made to medical directors of both hospitals (UWMC and Harborview Medical Center) as well as other top-level administrators to apprise them of the UWHSL's budgetary needs and how critical this resource was to ongoing clinical care. Conversations were also held with the heads of departments at Harborview Medical Center: surgery, cardiology, pediatrics, medicine, emergency medicine, and nursing.

In 2007, during the initial phase of contract discussions with UTD, their representatives met with the physician in charge of implementing ORCA, Dr. Thomas Payne, a clinical associate professor, medicine/general internal medicine, and part of the information technology (IT) services department working to develop the EMR. Dr. Payne's willingness to collaborate with UTD and the libraries to add resource links to UTD in ORCA provided an excellent opportunity for a collaborative effort between the

company, the medical centers, and the health sciences library.

In 2008, the health sciences libraries began a collaborative agreement with UTD, and the information technology services department at UW Medicine developed a link from ORCA to UTD, eliminating the need to open a separate window to gain access to UTD.

As part of the collaborative effort to link ORCA and UTD, the UWHSL began working with Dr. James Fine, the chief information officer for IT services at UW Medicine and professor and chairman of laboratory medicine and ultimately the person in charge of the EMR and the budget. Recognizing that UTD is a vital clinical resource that is extensively used by medical center providers, the health sciences library was eventually able to reach an agreement with the medical centers to help support the cost of this resource.

As a result of the additional support and help from Drs. Payne and Fine, UTD has been incorporated into the medical record via the links in the EMR. One additional benefit to the physicians is that when using UTD via the EMR, continuing medical education credit is tracked by UTD, allowing physicians to receive credit for their searches.

LIBRARIAN ACCESS TO THE ELECTRONIC MEDICAL RECORD

By 2008, all librarians at UWHSL had completed Health Insurance Portability and Accountability Act (HIPAA) training and began learning even more about ORCA and the ways it is used in both medical centers. While librarians could see and learn about ORCA when a physician was available to demonstrate it, librarians could not access the records independently. Direct access was highly desirable, as it would allow librarians to help physicians remotely as well as analyze how the ERM was used and what was needed to improve their use of ORCA.

Access to patient medical records is very tightly controlled, as well it should be. A strong argument needed to be made for why librarians would need access to this type of record. Getting this permission was a long, sometimes frustrating, but eventually successful journey. Following established procedures, a request for access was submitted via UW User Access Administration, part of UW Medicine IT Services. After multiple emails explaining the reasons access was required, the committee in charge of granting access, the UW Confidential and Access Work Group (CAWG), invited the associate director of the UWHSL to attend a meeting of this group and explain it in person. CAWG comprises various compliance officers, IT managers, and heads of hospital units. CAWG is part of the UW Medicine Compliance Department and has the responsibility for dealing with the security and confidentiality environment at UW Medicine. Payne supported the request and attended the meeting to explain the value

of librarians having access to EMRs and the benefits that would ensue.

Librarian access to the EMR was approved and granted as of January 2009. As of the date of this symposium, UWHSL has five librarians who have access, work with physicians to review their needs for information, and help them answer questions they might have. The librarians' view of the EMR is identical to that of the physicians so that librarians can understand and assist physicians with their questions.

The UWHSL's future goals are to continue the collaboration with the medical centers and provide them input as to what information resources would be useful to have in the medical record and what is the best way to provide that access. The library is also working on ways that would allow librarian notes to be entered into the record for the physician, such as citations to articles that would benefit their work. The ability to provide order sets and to drill down to provide an answer, and not just a link, are two additional areas under exploration.

LESSONS LEARNED

The history of EMR development at UWHSL and the UW Medical Centers demonstrates several lessons. It was critical that library collaboration with the clinical

units began many years ago and that the library had repeatedly demonstrated that librarian assistance was valuable. Collaboration early and as often as possible is necessary for successful librarian involvement with EMRs. It can be a long process, but an excellent foundation on which to build. Finding as many champions for library efforts as possible is vital. Often these connections happen serendipitously, but they are nonetheless critical. The author recommends becoming involved in as many areas as possible to gain recognition and respect. And lastly, keep trying.

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